

## **ABSTRACT OF THE DISCLOSURE**

One embodiment of the present invention includes a circular shift register, K storage elements, and a code register. The circular shift register having N data samples circularly shifts a first data sample of the N data samples into a data position at a first clock frequency. The N data samples correspond to signal received from one of K satellites in a global positioning system (GPS). The N data samples are loaded into the circular shift register at a second clock frequency. The K storage elements store K code sequences, respectively. Each of the K code sequences has N code samples and includes a first code sample being written at a code position corresponding to the data position at a third clock frequency. The K storage elements correspond to the K satellites. The code register stores the N code samples loaded from one of the K storage elements at a fourth clock frequency. The fourth clock frequency is K times faster than the first clock frequency.

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